

REMARKS

Claims 10, 12, 13 and 19-25 are pending in this application.

In view of the following remarks, reconsideration and allowance are respectfully requested.

I. Rejections Under 35 U.S.C. §103

The Office Action rejects claims 10, 12, 13 and 19-25 under 35 U.S.C. §103(a) over U.S. Patent No. 4,769,073 to Tastu et al. ("Tastu") in view of EP 0 444 470 A1 to Ashley et al. ("Ashley") and further in view of U.S. Patent No. 6,171,572 to Aozasa ("Aozasa") and U.S. Patent No. 5,264,010 to Brancaleoni et al. ("Brancaleoni"). Applicants respectfully traverse the rejection.

Claim 10 recites, *inter alia*, "an abrasive for polishing a substrate comprising silica in an amount of 50 wt% or more, the abrasive comprising a sol, which includes particles dispersed in an aqueous medium, wherein: the particles comprise as a main component crystalline cerium oxide of cubic system and as an additional component a lanthanum compound, neodymium compound or a combination thereof ... the abrasive has a pH of 3 to 6 or 8 to 10." Independent claims 19 and 22 recite similar features. Applicants respectfully assert that Tastu, Ashley, Aozasa and Brancaleoni, individually or in combination, would not have rendered obvious at least the above features of claims 10, 19 and 22.

The Office Action asserts that Tastu discloses an admixture that contains a cerium oxide and lanthanide salt and that has a pH of greater than 6 but not more than 10. The Office Action cites Tastu, col. 7, line 19 - col. 8, line 7 to support this assertion. Applicants respectfully assert that Tastu fails to disclose, and would not have rendered obvious, at least the composition and pH of the claimed abrasive.

Tastu discloses, "the pH of the reaction medium should then be greater than 6, but must not exceed 10." Tastu, col. 8, lines 3-6. This "reaction medium" of Tastu does not comprise the same components as the final product of Tatsu as disclosed in col. 7, lines 19-27. The "reaction medium" comprises a cerium salt rather than cerium oxide as claimed. See Tastu, col. 7, lines 59-60.

Specifically, Tastu discloses "the proportions of the ceric oxide and the rare earth oxides in the polishing composition described in French Patent No. 2,545,830 may be within the following limits: (i) 40% to 99.5% by weight of ceric oxide; (ii) 0.5% to 60% by weight of the rare earth oxides." Tastu, col. 7, lines 19-23. Tastu also discloses, "the compositions described in French Patent No. 2,545,830 are prepared by simultaneously and continuously mixing together a solution of the cerium salt, a basic solution, and a solution of at least one salt of the trivalent rare earth selected from among the lanthanides and yttrium, the oxide of which is colorless (with the number of basic equivalents being greater than or equal to the number of cerium and rare earth equivalents and the pH of the reaction medium being greater than 6), and then by filtering the resulting precipitate, and drying and calcining same." Tastu, col. 7, lines 22-39 (emphasis added).

Tastu then discloses that the "second stage of the process for producing the [final] composition described in French Patent No. 2,545,830 includes filtering the reaction mass (which is in the form of a suspension) upon completion of the reaction." Tastu, col. 8, lines 38-43 (emphasis added). Finally, Tastu discloses that "the compositions of the invention are used for the polishing of glass in conventional manner. As they are typically employed in a spray polishing system, they are in suspension in water." Tatsu, col. 10, lines 5-8.

Therefore, as outlined above, Tastu discloses that a polishing composition contains ceric oxide and rare earth oxides, and that the ceric oxide is prepared by reacting a cerium salt

with a basic material at pH of 6-10 to obtain a reaction mass, filtering the reaction mass, and drying and calcining the reaction mass. Thus, the reaction mass of Tastu is obtained by conducting a reaction in a reaction medium, which contain cerium salt, at a pH of 6-10. Tastu does not disclose the composition of the reaction mass, but Tastu does disclose that the reaction mass is obtained as a precipitate from the reaction medium. See Tastu, col. 8, lines 1-55. Therefore, Tastu merely discloses that when a cerium salt is reacted with the rare earth salt in a pH of 6-10, a resulting material is a reaction mass condensate. Further, Tastu discloses the preparation of a polishing liquid by dispersing the calcined cerium oxide in water, but Tastu does not disclose the pH of the resulting polishing liquid. Therefore, Tastu fails to disclose and would not have rendered obvious the pH of the resulting polishing liquid as claimed.

Alternatively, independent claims 10, 19 and 23 are directed to an abrasive (a polishing liquid) of cerium oxide containing rare earth oxides such as lanthanum or neodymium, and the polishing liquid has a pH of 3-6 or 8-10 and the cerium oxide is stable in the liquid. An abrasive in a state of a colloidal solution having stable pH region, as claimed, provides high removal rate in smooth surface of a polished object. For at least the reasons stated above, Tastu does not disclose or provide any reason or rationale for one of ordinary skill in the art to have modified the disclosure of Tastu to result in a polishing abrasive with a pH between 3 and 6 or 8 and 10 as recited in claims 10, 19 and 23.

Further, Ashley, Aozasa and Brancaleoni are not applied to address the above discrepancy of Tastu as to claims 10, 19 and 22. Therefore, Tastu, Ashley, Aozasa and Brancaleoni, individually or in combination, would not have rendered obvious at least the above features of claims 10, 19 and 22.

Claims 10, 19 and 22 would not have been rendered obvious by Tastu, Ashley, Aozasa and Brancaleoni, individually or in combination. Claims 12, 13, 20, 21 and 23-25

variously depend from claims 10, 19 and 22 and, thus, also would not have been rendered obvious by Tastu, Ashley, Aozasa and Brancaleoni, individually or in combination. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

II. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the application are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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